EXAMINATION AND SAMPLING PROCEDURES FOR MICROBIOLOGICAL REQUIREMENTS FOR NON-FEDERAL PURCHASE ITEMS

Purpose

This Instruction sets forth U.S. Department of Agriculture (USDA), Agricultural Marketing Service (AMS), Meat Grading and Certification (MGC) Branch policies and procedures for the selection, collection, preparation, and shipment of samples of product requiring microbiological analysis.

Policy

It is USDA policy to analyze meat products for the presence of microbiological organisms when specified by the contract, specification and/or purchaser. This Instruction applies to all meat products requiring microbiological analysis with the exception of USDA purchased product for the National School Lunch Program for which the sampling, preparation, shipment, and analysis has been specified in USDA Technical Requirements Schedules and the contractor's approved technical proposal.

For all other products requiring microbiological sampling, it is the policy of the MGC Branch to select samples in accordance with universally recognized protocols, maintain sample integrity, and ensure that samples are prepared for laboratory analysis in accordance with the Association of Official Analytical Chemists (AOAC) International (Exhibit A), the Food and Drug Administration Microbiological Analytical Manual (BAM), and the appropriate chapter of the Compendium of Methods for the Microbiological Examination of Foods (current edition) published by the American Public Health Association. E. coli O157:H7 samples will be tested using the referenced test method within the USDA/FSIS Microbiology Laboratory Guidebook, 3rd Edition/1998, Chapter 5.

Scope

This Instruction applies to any processor or producer who supplies meat products as a contractor or subcontractor which requires microbial sampling, but has not specified sampling procedures in contracts, specifications, schedules, technical proposals, etc.

Responsibilities

Contractors Will:

1. Provide a plant employee trained and experienced in microbiological sampling, knowledgeable of the documents referenced in the Policy section of this Instruction, and capable of preparing microbial samples under the supervision of MGC Branch personnel.

2. Provide a Food Safety and Inspection Service (FSIS)-approved sanitary work area and sampling equipment, including a sanitized table, knives, spatulas, and other sample collecting devices.

3. Provide an FSIS-approved water sterilizer capable of maintaining water at a temperature of 180° Fahrenheit (F) (82.2° Celsius (C)) within easy access of the sample preparation facilities and equipment.

   Note: Knives, spatulas, etc., shall not be sterilized with chemical sanitizers. Chemical sanitizers may be used to sanitize work spaces and table tops provided the area rests for a minimum of one hour prior to sample collection.

4. Provide an adequate and secure freezing facility for storage of reserve samples.

5. Pay for all shipment and analysis charges for samples forwarded to the contracted laboratory.

6. Select and analyze internal control samples.

Contracted Laboratory Will:

Supply everything necessary for submitting samples including sample packaging materials:

- Shipping containers
- “Blue Ice” gel packs
- “Whirl Pak” type bags

MGC Branch Supervisors and Meat Graders at the Point of Production Will:

1. Ensure contractors comply with all microbiological sampling requirements of applicable MGC Branch Instructions and other contractual requirements.

2. Approve the work area, sample collecting equipment, and related supplies.

3. Ensure that only sanitized equipment and supplies are used for sample withdrawal and preparation.

4. Maintain adequate sample control measures at all times to prevent tampering.

MGC Branch Office Will:

1. Monitor movement of samples submitted to the contracted laboratory.

2. Ensure analysis results are submitted to shipping personnel in a timely manner.

3. Charge additional laboratory analysis fees to applicants with presumptive or confirmed positive samples, in accordance with MGC Instruction 428, Fees for Laboratory Analysis.

4. Manage and maintain Laboratory Analysis Files.

Contracted Laboratory

The contracted laboratory will analyze one pound samples for the microbial organisms specified which may include Standard Plate Count, Total Coliforms, E. coli, E. coli 0157:H7, Salmonella, and Coagulase Positive Staphylococci.

The contracted laboratory requires that the original one-pound micro sample, and the one-pound reserve samples be placed in the provided "Whirl Pak" bags and flattened into bricks ¾ inch to 1 inch thick.

1. Sample Selection, Collection and Preparation

   Composite samples may be obtained from any randomly selected 4 boxes during the production day. Samples shall be selected and prepared as follows:

   a. For bulk ground product – Samples shall be taken from the primary container (box, chub, loaf, etc.). For chubs and loaves, use a sterile knife to remove the outer packaging. Cut the ends of the chub or loaf wrapping off and expose the product by cutting the plastic film from one end to the other, taking sufficient care to avoid contaminating the meat product. Using a sterilized spatula or knife (do not use the same knife used to cut the plastic wrapping), split the chub or loaf lengthwise. Remove the required amount of ground product by making a perpendicular cut to the length of the chub or loaf with a knife, spatula or sterile glove covered hand taking enough product to equal the one pound original and reserve samples. Place samples directly into a sterile sample container, composite, and select and flatten the final sample into bricks ¾ inch to 1 inch thick.

   b. For patty product – In an individual quick freeze process, patties must be selected before freezing. Six patties shall represent a one-pound sample. Place samples directly into the sterile sample containers, composite, and select and flatten the final samples into bricks ¾ inch to 1 inch thick.

      Note: Select an adjacent loaf, bag, chub, or patty if the primary selected sample is inadvertently contaminated during the withdrawal, compositing, and preparation process.

c. After selecting the final sample from the composite, place the reserve sample into the secure freezer facilities provided by the contractor.

2. Sample Shipment

a. Prepare the Request for Laboratory Analysis and Chain of Command (Exhibit B) electronic template.

1. E-mail or fax a copy of the completed Request for Laboratory Analysis and Chain of Custody form to GradingInfo@usda.gov.

2. Place a copy of the completed Request for Laboratory Analysis and Chain of Custody form in the side pouch of the Official USDA Meat Grading Sample Bag (Exhibit C) and close.

b. Place the original sample into the Official USDA Meat Grading Sample Bag and secure for shipment (step-by-step instructions are on the bag). If the original sample is lost or unusable, follow the same shipping instructions when sending the reserve sample.

c. Wrap the Official USDA Meat Grading Sample Bag with a paper buffer, place into the polyfoam mailer, place frozen "Blue Ice" gel packs around sample and fill in the open space with paper products to ensure that the sample maintains temperature throughout shipment.

Note: Do not send frozen original microbiological samples. Optimum temperature of original samples is 40° F.

d. Securely close the mailer and ship to the contracted laboratory at the following address:

Warren Analytical Laboratories
650 "O" Street
Greeley, CO. 80631

e. **Do not use tape to close the mailer or apply a shield stamp to the mailer.**

3. Sample Receipt

a. The laboratory will receive one-pound samples on Monday through Saturday, except on select Federal Holidays (New Years Day, July 4th, Labor Day, Thanksgiving and Christmas).

Note: Samples shipped to be delivered on Saturday must have special handling instructions on courier documents to specify Saturday delivery.

b. If samples are not suitable for testing, the contracted laboratory will contact a designated MGC Branch staff member immediately by phone or e-mail, and will send a follow-up notification by fax.

1. Phone – (720) 497-2531.

2. E-mail – GradingInfo@usda.gov.

3. Fax – (720) 497-0571.

c. A designated MGC Branch staff member will then contact the appropriate grader and request that the reserve sample(s) be submitted to the contracted laboratory for analysis.

4. Reporting Results

a. The contracted laboratory will transmit test results electronically to the MGC Branch Office by 5:00 PM EST, Monday through Friday at GradingInfo@usda.gov.

b. Test results completed during a weekend will be transmitted no later than 9:00 AM EST of the following Monday or first official business day of the week.

c. In case of network problems, the laboratory will fax the test results to the MGC Branch Office at (720) 497-0571.

Click on document to view

Exhibit A

Exhibit B

Exhibit C

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

EXHIBIT A

39. Meat and Meat Products

David L. Soderberg, Chapter Editor
U.S. Department of Agriculture

39.1.01

AOAC Official Method 983.18
Meat and Meat Products
Preparation of Sample
Procedure

To prevent H_2O loss during preparation and subsequent handling, do not use small samples. Keep ground material in glass or similar containers with air- and H_2O-tight covers. Prepare samples for analysis as follows:

(**a**) *Fresh meats, dried meats, cured meats, smoked meats, etc*.-Separate as completely as possible from any bone; pass rapidly 3 times through food chopper with plate openings ≤1/8" (3 mm), mixing thoroughly after each grinding; and begin all determinations promptly. If any delay occurs, chill sample to inhibit decomposition.

Alternatively, use a bowl cutter for sample preparation (benchtop model, 1/2 HP; 14 in. bowl, 22 rpm; two 3.5 in. knives, 1725 rpm; Model 84145, Hobart Corp., 711 Pennsylvania Ave, Troy, OH, 45374, or equivalent). Chill all cutter parts before preparation of each sample.

Food Processor-FirstActionl990.-Benchtop model, 110/120 V, 60 Hz, 1 hp,7.5 A, 1725 rpm, fan-cooled motor, 4 qt bowl; Model R4Y, Robot Coupe, USA, Inc., Jackson, MS, or equivalent. (Caution: Do not remove cutter bowl lid or cutter bowl from base until motor has come to full stop. Do not put hand, finger, or any object into bowl while motor is running. Unplug appliance before servicing or cleaning.)

Precut sample, up to 2 lb, to maximum dimension ≤2 in., and transfer to bowl for processing. Include any separated liquid. Process 30 s, then wipe down inner side wall and bottom of bowl with spatula (use household plastic or rubber spatula with ca 2 in. by 4 in. straight-edge blade) and transfer gathered material to body of sample. Continue processing another 30 s and wipe down as before. Repeat sequence to give total of 2 min processing and 3 wipe downs.

Take particular care with certain meat types such as ground beef to assure uniform distribution of fat and connective tissue. At each wipe-down interval, reincorporate these into sample by using spatula to remove fat from inside surfaces of bowl and connective tissue from around blades. If sample consolidates as ball above blades, interrupt processing and press sample to bottom of bowl with spatula before continuing.

Reference: JAOAC **72**, 777(1989).

(**b**) *Canned meats*.-Pass entire contents of can through food chopper, bowl cutter or food processor, as in (a).

(**c**) *Sausages*.-Remove from casings and pass through food chopper, bowl cutter or food processor, as in (a).

Dry portions of samples of (a), (b), and (c) not needed for immediate analysis, either in vacuo <60° or by evaporating on steam bath 2 or 3 times with alcohol. Extract fat from dried product with petroleum ether (bp <60°) and let petroleum ether evaporate spontaneously, finally expelling last traces by heating short time on steam bath. Do not heat sample or separated fat longer than necessary because of tendency to decompose. Reserve fat in cool place for examination as in chapter on oils and fats and complete examination before it becomes rancid.

Reference: JAOAC **66**, 759(1983).

39.l.02

AOAC Official Method 950.46
Moisture in Meat

A. Drying in Vacuo at 95-100°
--Final Action

Proceed as in **934.01** (*see* 4.1.03). (Not suitable for high fat products such as pork sausage.)

B. Air Drying
--First Action
--Final Action 1991

(**a**) With lids removed, dry sample containing ca 2 g dry material 16-18 h at 100-102° in air oven (mechanical convection preferred). Use covered Al dish ≥50 mm diameter and ≤40 mm deep. Cool in desiccator and weigh. Report loss in weight as moisture.

(**b**) With lids removed, dry sample containing ca 2 g dry material to constant weight (2-4 h depending on product) in mechanical convection oven or in gravity oven with single shelf at ca 125°. Use covered Al dish ≥50 mm diameter and ≤40 mm deep. Avoid excessive drying. Cover, cool in desiccator, and weigh. Report loss in weight as moisture. (Dried sample is not satisfactory for subsequent fat determination.)

References: JAOAC **33**, 749(1950); **36**, 279(1953).

39.1.03

AOAC Official Method 985.14
Moisture in Meat
and Poultry Products
Rapid Microwave Drying Method

First Action 1985
Final Action 1991

A. Principle

Moisture is removed (evaporated) from sample by using microwave energy. Weight loss is determined by electronic balance readings before and after drying and is converted to moisture content by microprocessor with digital percent readout.

Exhibit B

Warren Analytical Laboratory

650 "O" Street, Greeley, CO 80631
970.475.0252 ● FAX 970.351.6648
www.warrenlab.com

Request for Laboratory Analysis & Chain of Custody

Client:	USDA, AMS, LSP, MGC Branch	**Contact:**	Willard Goad or Leonard Woody	**Phone:**	720-497-2531	**Fax:**	720-497-0571
Address:	13952 Denver West Parkway, Suite 350	**City:**	Golden	**State:**	Colorado	**Zip:**	80401
PO Number:	AG-6395-D-07-0374	**Plant Name:**		**Applicant Number:**		**E-mail:**	GradingInfo@usda.gov
Sampler (Print/Sign):				**USDA Sample Bag Number:**			

Lab Use Only

Work Order #: WAL Project Manager:

Shipping: ☐ UPS ☐ FedEx Airbill No:

Temperature: Notes:

Food & Microbiological Services

Item	Sample ID and Description / Product	Orig	Res	Date of Production	No. of Cntrs.	LOT	Standard Plate Count	Total Coliforms	Generic *E. coli*	*Staphylococci*	*Salmonella*	*E-Coli 0157:H7*	Fat %	Salt
		☐	☐				☐	☐	☐	☐	☐	☐	☐	☐

Special Instructions to the Lab:

Relinquished By:	Date/Time:	Received By:	Date/Time:

08/02/07

Exhibit B

A 051962

Do Not Cut Here to Open

Do Not Cut Here to Open

Do Not Cut Here to Open

Do Not Cut Here to Open

Do Not Cut Here to Open

Do Not Cut Here to Open

WARNING:

BAG AND CONTENTS ARE PROPERTY OF USDA

Unauthorized Use, Removal, or Alteration in any Manner without the Expressed Permission of an Authorized Representative of USDA is a violation of the Agricultural Marketing Act of 1946, as amended and regulations issued thereunder.

The Words "VOID Tampering Detected" Appearing in yellow on the Green Tape may indicate tampering. Do Not Open Bag. Notify MGC at 202-720-1246.

OFFICIAL

USDA

Meat Grading

SAMPLE

INSTRUCTIONS

1. Indicate Bag Number on Lab Form. Insert in Back Pouch of Bag. Remove strip and seal.
2. Place sample jars into Bag. Place bag print side down on a flat surface. Fold Back Green Tape away from Bag Opening. Remove strip to expose adhesive.
3. Press Green Tape firmly and smooth to close.
4. AVOID DIRECT CONTACT WITH DRY ICE!

To Remove Contents - Cut Along Bottom Dotted Line